

REMARKS

The Office Action mailed June 28, 2004, has been received and reviewed. Claims 1 through 23 are currently pending in the application. Claims 1 through 6, 9 through 11, 13 through 20 and 22 stand rejected. Claims 7, 8, 12, 21 and 23 have been objected to as being dependent upon rejected base claims, but the indication of allowable subject matter in such claims is noted with appreciation. Applicants have amended claims 1, 7-9, 12, 15, 21 and 23, and respectfully request reconsideration of the application as amended herein.

Objections to Claims 7, 8, 12, 21 and 23/Allowable Subject Matter

Claims 7, 8, 12, 21 and 23 stand objected to as being dependent upon rejected base claims, but are indicated to contain allowable subject matter and would be allowable if placed in appropriate independent form.

Regarding claim 7, Applicants have amended, into independent form, objected to claim 7 which includes elements, one of which is a first screen comprising, among other things, "a pressure compensating layer internally adjacent to said imaging screen and configured to neutralize underwater pressure against said imaging screen". Applicants respectfully request the objection be withdrawn.

Regarding claim 8, Applicants have amended, into independent form, objected to claim 8 and respectfully request the objection be withdrawn.

Regarding claim 12, Applicants have amended, into independent form, objected to claim 12 and respectfully request the objection be withdrawn.

Regarding claim 21, Applicants have amended, into independent form, objected to claim 21 and respectfully request the objection be withdrawn.

Regarding claim 23, Applicants have amended, into independent form, objected to claim 23 and respectfully request the objection be withdrawn.

35 U.S.C. § 102(b) Anticipation Rejections

Anticipation Rejection Based on U.S. Patent No. 3,869,904 to Gabor

Claims 1, 5, 9, 11, 15, 19, 20 and 22 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Gabor (U.S. Patent No. 3,869,904). Applicants respectfully traverse this rejection, as hereinafter set forth.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Applicants respectfully submit that the Gabor reference does not and cannot anticipate under 35 U.S.C. § 102 the presently claimed invention of amended independent claims 1, 9, 15, and claims 5, 11, 19, 20 and 22 depending therefrom because the Gabor reference does not describe, either expressly or inherently, the identical inventions in as complete detail as are contained in the claims. More specifically, Applicants submit that the Gabor reference does not describe, either expressly or inherently, the elements of the claimed inventions of presently amended independent claims 1, 9 and 16.

Regarding amended independent claim 1, Applicants claim, among other things, “a first screen having first and second sides, said first side configured to receive a reflected acoustic wavefront as reflected from said target object, said first and second sides further configured to physically deform in response to said reflected acoustic wavefront, said first screen further comprising a pressure compensating layer internally adjacent to said first side to neutralize underwater pressure against said first screen”. Such limitations are not disclosed either expressly or inherently within the cited reference, therefore, the rejection should be withdrawn.

Regarding amended independent claim 9, Applicants claim, “A method for imaging underwater objects comprising: ensonifying a target object with an acoustic wavefront; deforming a first side of a first screen and a second side of said first screen in response thereto with a reflected acoustic wavefront as reflected by said target object; pressure compensating said

first screen with a pressure compensating layer internally adjacent to said first screen to neutralize underwater pressure against said first screen; and converting said reflected acoustic wavefront on said second side of said first screen into a first optical intensity image of said target object.” Such limitations are not disclosed either expressly or inherently within the cited reference, therefore, the rejection should be withdrawn.

Regarding amended independent claim 15, Applicants claim, “An underwater camera, comprising: a first screen having first and second sides, said first side configured to receive a reflected acoustic wavefront as reflected from a target object, said first and second sides further configured to physically deform in response to said reflected acoustic wavefront; a first optical processing system optically coupled to said second side of said first screen for converting said reflected acoustic wavefront on said second side of said first screen to a first optical intensity image of said target object; a housing configured to submersibly enclose said second side of said first screen and said first optical processing system; and wherein said first screen further comprises a pressure compensating layer internally adjacent to said first side to neutralize underwater pressure against said first screen.” Such limitations are not disclosed either expressly or inherently within the cited reference, therefore, the rejection should be withdrawn.

In contrast to the elements of the presently claimed inventions of amended independent claims 1, 9 and 15 as set forth herein, the Gabor reference only explicitly describes an ultrasonic system where both sides of the screen are subjected to submersion in a liquid with the camera isolated through a lens configuration. Applicants respectfully submit that such a system does not and cannot describe the presently claimed elements of the inventions of the amend independent claims 1, 9 and 15 and the claims 5, 11, 19, 20 and 22 depending therefrom.

Therefore, presently amended independent claims 1, 9 and 15 are not anticipated by the Gabor reference under 35 U.S.C. § 102. Accordingly, such claims are allowable over the cited prior art.

Anticipation Rejection Based on U.S. Patent No. 3,772,457 to Macovski

Claims 1 through 5, 9 through 11, 13, 15 through 17, 19, 20 and 22 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Macovski (U.S. Patent No. 3,772,457). Applicants

respectfully traverse this rejection, as hereinafter set forth.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Applicants respectfully submit that the Macovski reference does not and cannot anticipate under 35 U.S.C. § 102 the presently claimed invention of amended independent claims 1, 9, 15, and claims 5, 11, 19, 20 and 22 depending therefrom because the Macovski reference does not describe, either expressly or inherently, the identical inventions in as complete detail as are contained in the claims. More specifically, Applicants submit that the Macovski reference does not describe, either expressly or inherently, the elements of the claimed inventions of presently amended independent claims 1, 9, and 16.

Applicants herein sustain the inventions of amended independent claims 1, 9 and 16 as detailed above. Specifically, the respective claim elements drawn to “a pressure compensating layer internally adjacent to said first side to neutralize underwater pressure against said first screen”; “pressure compensating said first screen with a pressure compensating layer internally adjacent to said first screen to neutralize underwater pressure against said first screen”; and “a housing configured to submersibly enclose said second side of said first screen and said first optical processing system; and wherein said first screen further comprises a pressure compensating layer internally adjacent to said first side to neutralize underwater pressure against said first screen.”

In contrast to the elements of the presently claimed inventions of amended independent claims 1, 9 and 15 as set forth herein, the Macovski reference only explicitly describes an acoustic to optical converting system including a container having a “light illuminating surface 16” on one end which may be comprised of a “light reflecting material, Silvered Mylar, for example”. Applicants respectfully submit that such a system does not and cannot describe the presently claimed elements of the inventions of the amended independent claims 1, 9 and 15 and the claims 2-5, 10, 11, 13, 16, 17, 19, 20 and 22 depending therefrom.

Therefore, presently amended independent claims 1, 9 and 15, and claims 2-5, 10, 11, 13, 16, 17, 19, 20 and 22 depending therefrom, are not anticipated by the Macovski reference under 35 U.S.C. § 102. Accordingly, such claims are allowable over the cited prior art.

35 U.S.C. § 103(a) Obviousness Rejections

Obviousness Rejection Based on U.S. Patent No. 3,772,457 to Macovski when taken with U.S. Patent No. 5, 262,884 to Buchholz

Claims 6, 14 and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Macovski (U.S. Patent No. 3,772,457) when taken with Buchholz (U.S. Patent No. 5, 262,884). Applicants respectfully traverse this rejection, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

The 35 U.S.C. § 103(a) obviousness rejections of claims 6, 14 and 18 are improper because the elements for a *prima facie* case of obviousness are not met. Specifically, the rejection fails to meet the criterion that the prior art references must teach or suggest all the claims limitations.

The Office Action relies upon the Buchholz reference for teaching an integral screen/membrane with an acoustic lens. Applicants respectfully assert that a close reading of the Buchholz reference reveals that the "lens" of the Buchholz reference is an "optical" lens rather than an "acoustic" lens. (See col. 3, lines 5-11). Furthermore, various other claim limitations are not present in either reference, either individually or in any proper combination.

Regarding claim 6, the Macovski reference and the Buchholz reference do not appear to teach or suggest claim elements drawn to “a pressure compensating layer internally adjacent to said first side to neutralize underwater pressure against said first screen”, as claimed by Applicants’ amended independent claim 1 from which claim 6 at least indirectly depends. Therefore, Applicants respectfully request that the rejection of claim 6 be withdrawn.

Regarding claim 14, the Macovski reference and the Buchholz reference do not appear to teach or suggest claim elements drawn to “pressure compensating said first screen with a pressure compensating layer internally adjacent to said first screen to neutralize underwater pressure against said first screen”, as claimed by Applicants’ amended independent claim 9 from which claim 14 at least indirectly depends. Therefore, Applicants respectfully request that the rejection of claim 14 be withdrawn.

Regarding claim 18, the Macovski reference and the Buchholz reference do not appear to teach or suggest claim elements drawn to “a housing configured to submersibly enclose said second side of said first screen and said first optical processing system; and wherein said first screen further comprises a pressure compensating layer internally adjacent to said first side to neutralize underwater pressure against said first screen”, as claimed by Applicants’ amended independent claim 15 from which claim 18 at least indirectly depends. Therefore, Applicants respectfully request that the rejection of claim 18 be withdrawn.

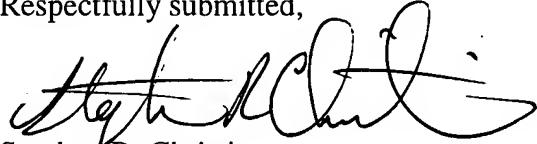
ENTRY OF AMENDMENTS

The amendments to claims 1, 7-9, 12, 15, 21 and 23 above should be entered by the Examiner because the amendments are supported by the as-filed specification and drawings and do not add any new matter to the application. Further, the amendments do not raise new issues or require a further search.

CONCLUSION

Claims 1-23 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, he is respectfully invited to contact Applicants' undersigned attorney.

Respectfully submitted,



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